

# Welding – Level I & II

## Certificates

The Welding program allows students the opportunity to complete certificates at two levels and to transfer these certificates toward an Associate of Applied Science degree in Industrial Engineering Technology. The Level I Welding certificate is for students who intend to seek entry-level employment after completing a one-year program of study. The Level II certificate is for students interested in advancing their skill level beyond Level I.

The curriculum fulfills the guidelines of Excel in Career and Technical Education, which provides students with a technical education background to prepare them for college and a career. Students will learn GMAW, GTAW, SMAW, FCAW processes as well as various cutting processes. First year students will take part in the American Welding Society (AWS) 1G, 2G, 1F, and 2F Welder Procedure Qualification Records (WPQR). Second year students will participate in AWS 3G, 4G, 3F, and 4F Welder Procedure Qualification Records (WPQR). Advanced students will also have a chance to participate in (AWS/API/ASME) 6G. These qualification records will demonstrate that a student possess the knowledge to perform industry standard weld procedures that readily translate to the workplace.

Career areas in welding include welding, cutting, soldering, and brazing in the construction, manufacturing and utilities industries. Specific job titles include welding technician, supervisors, inspectors, instructors, and shop owners. The job outlook for welders in the construction, manufacturing, and utilities industries is increasing. Median earnings are \$15.10/hour.

### Level I Program Outcomes

1. Demonstrate the fundamentals of basic welding shop safety.
2. Demonstrate the ability to perform construction math.
3. Demonstrate the ability to correctly use welding tools.
4. Demonstrate the ability to read weld blueprints.
5. Demonstrate basic employability skills.
6. Demonstrate an understanding of metallurgy.
7. Demonstrate an understanding of gas metal arc welding – short circuit. (overlay/pad and fillet)
8. Demonstrate an understanding of oxy-fuel cutting.
9. Demonstrate an understanding of shield metal arc welding. (overlay/pad and fillet)
10. Demonstrate an understanding of plasma arc cutting.
11. Demonstrate an understanding of flux cored arc welding – dual shield. (overlay/pad and fillet)
12. Demonstrate an understanding of gas tungsten arc welding. (overlay/pad and fillet)

### Level II Program Outcomes

1. Demonstrate competence in gas metal arc welding – short circuit.
2. Demonstrate competence in flux cored arc welding – dual shield.
3. Demonstrate competence in gas tungsten arc welding.
4. Demonstrate competence in shielded metal arc welding.
5. Demonstrate competence in welder qualification for certification.

### Sequence of Courses

#### Level I Certificate

		Cr Hrs
<b>Semester I</b>		
MFGT 112	Welding Safety/OSHA 10	1
MFGT 114	Welding Cutting Processes	3
MFGT 118	Shielded Metal Arc Welding	3
	<b>Total</b>	<b>7</b>

#### Semester II

MFGT 116	Gas Tungsten Arc Welding	3
MFGT 120	Gas Metal Arc Welding	3
MFGT 122	Welding Blueprint Reading	3
	<b>Total</b>	<b>9</b>

**Total Level I Certificate Credits 16**

#### Level II Certificate

Level I Certificate requirements **Cr Hrs**  
**16**

#### Semester III

MFGT 126	Advanced Gas Metal Arc Welding	4
MFGT 128	Advanced Shielded Metal Arc Welding	4
	<b>Total</b>	<b>8</b>

#### Semester IV

MFGT 124	Advanced Gas Tungsten Arc Welding	4
MFGT 130	Specialized Welding	4
	<b>Total</b>	<b>8</b>

**Total Level II Certificate Credits 32**

### Associate of Applied Science Option

Students interested in completing an Associate of Applied Science degree in Industrial Engineering Technology with an emphasis in welding should visit with an advisor to determine general education and additional technical education requirements. Degrees require completion of 64 credit hours.

#### For more information contact:

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